

MEMO

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From

AIB 7 5/13  
Date 11/26/51

Answering  
Your Memo

Subject HYPODERMIC NEEDLE

The examination of the samples submitted demonstrated that the brass cap from the collapsible tube contained a fragment of a steel hypodermic needle and that this fragment was identical in every respect to the section of hypodermic needle submitted separately.

Spectrographic comparison showed that the relative amounts of residual impurities such as Cr, Ni, Mn, Cu, Mo, etc. are the same in the two sections. They were also found to be identical in outer diameter and structure as determined metallographically.

cc:

### SAMPLE

### SPECIAL SAMPLES

REPORT BY

DATE

NOVEMBER 5, 1951

SAMPLE: HYPODERMIC NEEDLES

REPORT BY

DATE NOVEMBER 27, 1951

**SAMPLE**

19. *Leucosia* *leucostoma* *leucostoma* *leucostoma*

REPORT

November 21, 1951

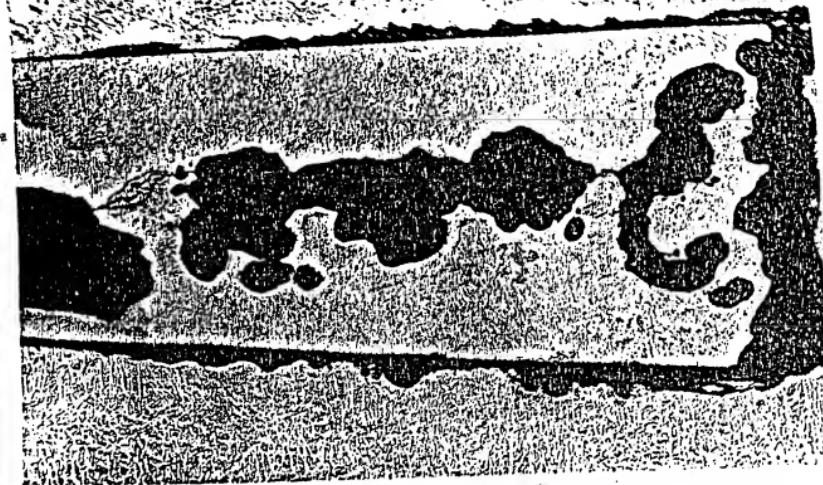
Metallographic study of Hypodermic Needle.

A brass ferrule enclosing a rusted end of a hypodermic needle, and 1/4 inch piece cut from a separate one-inch length of a rusted hypodermic needle were mounted in bakelite, ground down to present a longitudinal section in the outer wall of the needle, and polished for metallographic examination.

Both pieces of steel needle were observed to be of about the same diameter, but it was not possible to make measurements due to the rusted condition of the needle end encased in brass.

Description and micrographs are attached.

Respectfully submitted,



6518

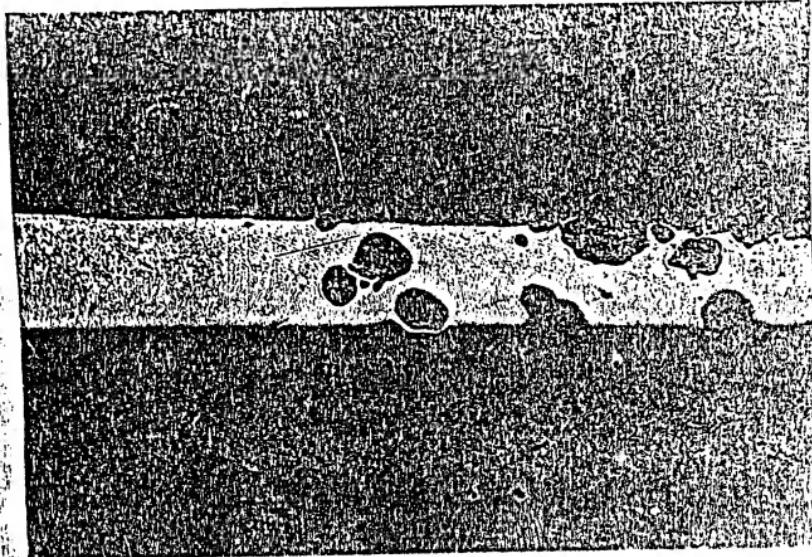


Plate 6518 As polished 100x

Longitudinal section ground part way through the wall of a hollow steel needle encased in brass.

The black areas are voids due to holes rusted through the steel from inside toward the outside.

The brass appears above and below the needle.

Plate 6519 As polished 100x

Longitudinal section ground a very little way into the wall of a hollow steel needle.

The black areas are rust pits which attacked the outside of the needle.

This section is narrower than the one above only because grinding did not progress as far into the wall.

The inclusion pattern of this piece of steel needle, represented by the small black dots, is about the same as that in the brass-enclosed needle above.

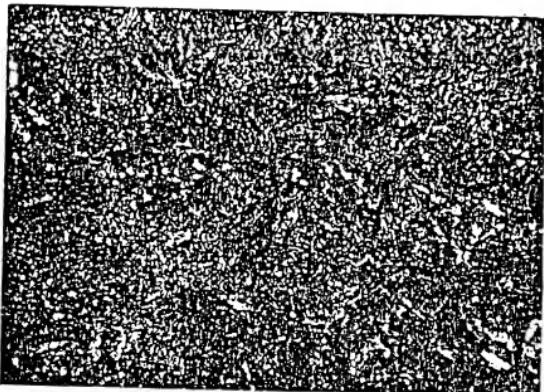


Plate 6521

Etched with Nital

1000X

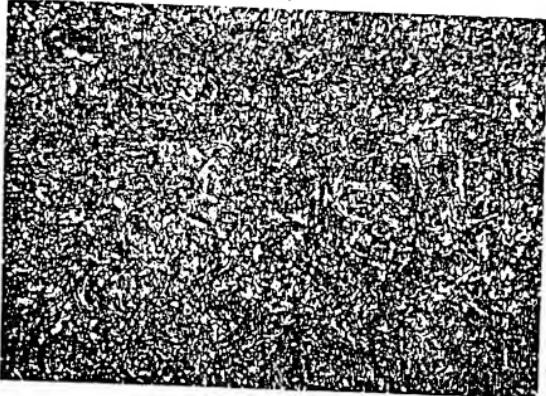


Plate 6520

Etched with Nital

1000 X

Plate 6521 Etched with Nital 1000x

Micrograph of etched microstructure of the  
needle enclosed in brass.

This structure consists of scattered  
spheroids of cementite in a matrix of tempered  
martensite. It is typical of a high carbon tool  
steel such as is usually used for hypodermic needles.

Plate 6520 Etched with Nital 1000x

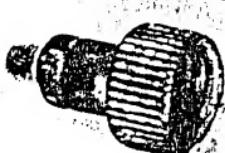
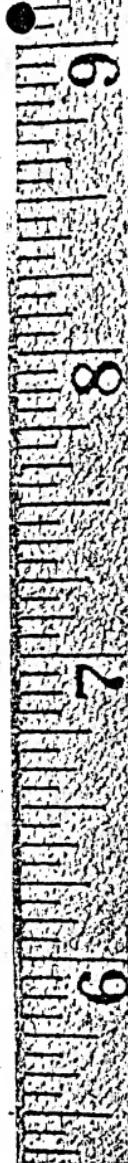
Micrograph of etched microstructure of the  
separate piece of needle.

This also consists of scattered spheroids  
of cementite in a matrix of tempered martensite.

12 INCH  
RULER

12 INCH  
RULER

WESTCOTT



RULER

10  
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WESTCOTT

